

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
20 November 2003 (20.11.2003)

PCT

(10) International Publication Number
WO 03/095993 A1(51) International Patent Classification⁷: G01N 21/55

(21) International Application Number: PCT/IL03/00373

(22) International Filing Date: 8 May 2003 (08.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
149557 9 May 2002 (09.05.2002) IL(71) Applicant (for all designated States except US): NOVA
MEASURING INSTRUMENTS LTD. [IL/IL]; Weiz-
mann Science Park, P.O.B. 266, 76100 Rehovoth (IL).

(72) Inventors; and

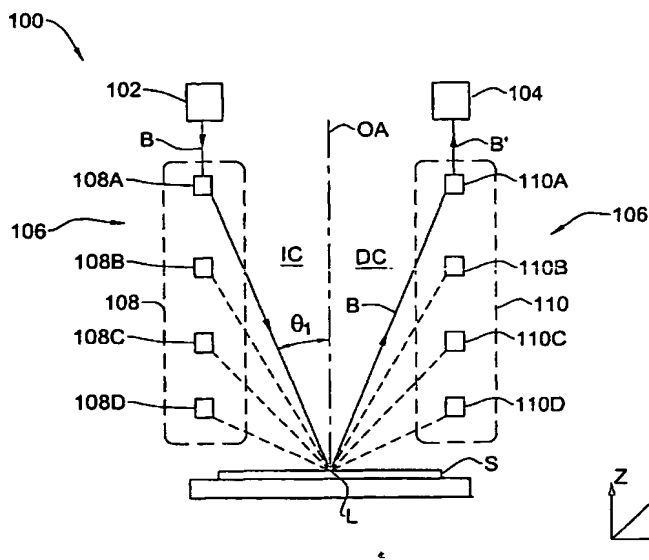
(75) Inventors/Applicants (for US only): BRILL, Boaz
[IL/IL]; 38 Hanasi Harishon Street, 76302 Rehovoth (IL).
FINAROV, Moshe [IL/IL]; 16/7 Einstein Str., 76470
Rehovoth (IL). SCHEINER, David [IL/IL]; 7 Iris Str.,
56905 Ganei Yehuda (IL).(74) Agent: KORSHUNOV, Oleg; Nova Measuring Instru-
ments Ltd., Weizmann Science Park, P.O.B. 266, 76100 Re-
hovoth (IL).(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: AN OPTICAL SYSTEM OPERATING WITH VARIABLE ANGLE OF INCIDENCE



(57) Abstract: An optical system for use in measurements in a sample comprising a light source (102) operable to produce an incident light beam propagating in a certain direction towards the sample (S) through an illumination channel (IC), a detector unit (104) for collecting light coming from the sample through a detection channel (DC), and generating data indicative of the collected light, a light directing assembly (106) operable to direct the incident beam onto a certain location on the sample's plane with a plurality of incident angles, and to direct light returned from the illuminated location to the detector unit (104), the light directing assembly (106) comprising a plurality of beam deflector elements (108 A-D), at least one of the deflector elements being movable and position of said at least one movable deflector element defining one of the selected incident angles.

WO 03/095993 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PC 03/00373

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N21/55

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EP0-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 392 125 A (REISSER HELMUT) 21 February 1995 (1995-02-21) column 3, line 15 - line 44 column 3, line 61 - column 4, line 16 figure 1	1-3, 20, 21
A	WO 00 58713 A (BENESCH NORBERT ; PFITZNER LOTHAR (DE); SCHNEIDER CLAUS (DE); FRAUN) 5 October 2000 (2000-10-05) page 8, line 16 - page 9, line 18 figure 1	1, 4, 20, 21
A	US 5 436 464 A (MORIYA HAJIME ET AL) 25 July 1995 (1995-07-25) column 10, line 7 - line 40 figure 1	1, 4, 5, 20, 21
	-/-	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 October 2003

Date of mailing of the international search report

17/10/2003

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Krametz, E

INTERNATIONAL SEARCH REPORT

International Application No
PC 03/00373

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4 218 144 A (JUNGLES JOHN ET AL) 19 August 1980 (1980-08-19) column 3, line 6 - line 21 column 3, line 34 - line 39 figure 1</p> <p>-----</p>	1,20,21

INTERNATIONAL SEARCH REPORT

Information on patent family members

national Application No

PCT/US 03/00373

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5392125	A	21-02-1995	DE 4138679 C1 GB 2261728 A ,B	18-02-1993 26-05-1993
WO 0058713	A	05-10-2000	DE 19914696 A1 WO 0058713 A2 EP 1166090 A2 JP 2002540422 T US 2002101585 A1	02-11-2000 05-10-2000 02-01-2002 26-11-2002 01-08-2002
US 5436464	A	25-07-1995	JP 3168480 B2 JP 5288688 A JP 3159271 B2 JP 5340882 A JP 6003281 A	21-05-2001 02-11-1993 23-04-2001 24-12-1993 11-01-1994
US 4218144	A	19-08-1980	DE 2860548 D1 EP 0001178 A1 GB 2004061 A ,B JP 54051575 A	16-04-1981 21-03-1979 21-03-1979 23-04-1979